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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,812	02/04/2004	Hideaki Matsuhashi	KANEKO.010AUS	3969

7590

10/19/2005

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EXAMINER

ADDISU, SARA

ART UNIT

PAPER NUMBER

3722

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/771,812	Applicant(s) MATSUHASHI ET AL.	
	Examiner Sara Addisu	Art Unit 3722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The objection to the Specification is withdrawn due to the Applicant's amendment filed 7/29/05.

Response to Arguments

2. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "rake angle of the rake face being 0 degree when cutting the workpiece", claimed in claim 1, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure

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is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1, lines 16-17 recite "...a rake angle of said rake face is 0 degree when cutting the workpiece". Further review of the specification does not clarify the claimed subject matter. For the purpose of this Office Action, as best understood, Examiner assumes it to mean, the rake face is not inclined (i.e. is a straight line).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-7, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Benzie (U.S. Patent No. 385,088), in view of Simpson (U.S. Patent No. 5,853,268). and further in view of Moskowitz et al. (U.S. Patent No. 4,956,318).

Benzie teaches cutting tool having a cylindrical shank portion (A), and a semi-cylindrical body portion (E) having a rake face, straight parallel side cutting edges (F & G) and end cutting edge (C & D) (see figures 1-3). Benzie also teaches the semi-cylindrical body portion (E) having a half moon shape in cross section ('088, Figures 4).

However, Benzie fails to teach the edge of the rake face being covered with diamond with a known surface roughness. Benzie also fails to teach the cutting tool being kept unrotated while cutting the workpiece.

Simpson teaches an insert having diamond-coated edges 318a, 318b, 318c (i.e.

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at the edge of the rake face). Simpson also teaches the use of laser to ablate the insert until the desired finish is achieved (Col. 4, lines 52-65). Regarding claim 4, Examiner has taken Official Notice that it is well known in the art to grind a surface to any desired roughness range.

Moskowitz et al. teaches a cutting tool being used for a number of different machining operations for machining metals ('318, Col. 1, lines 11-17). Moskowitz et al. also teaches the cutting tool and the metal being moved relative to each other such that either the cutting tool can held stationary while the workpiece is moved relative to the cutting tool (as claimed in claim 1) or the workpiece can be held stationary while the cutting tool is moved into the metal, or a combination of both ('318, Col. 2, lines 19-26). In the event the workpiece is moved relative to the cutting tool, the rake face is not inclined (i.e. is straight), it consequently be perpendicular to the moving direction (which reads on Applicant's Remark section, filed 7/29/05, page 14, lines 7-14 which recites "The limitation of the rake angle of the rake face is 0 degree when cutting the workpiece is supported by the specification at the paragraphs (0032) and (00381 each of which indicates that the rake face 8 is always held perpendicular to the predetermined direction (moving direction), because, by definition, the rake angle is zero when the rake face is perpendicular to the moving direction, i.e., the rake face is parallel with a tool reference plane throughout the operation").

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Benzie's invention such that the edge of the rake face is coated with diamond as taught by Simpson for the purpose of strength and

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durability/increasing the tool life. It would have also been obvious to one of ordinary skill in the art at the time of the invention was made to modify Benzie's invention such that cutting tool is kept unrotated while cutting a rotating workpiece, as taught by Moskowitz et al. because Moskowitz et al. teaches that this type of arrangement is typical for metal cutting operations ('318, Col. 2, lines 19-23).

6. Regarding claims 3 and 5, Benzie '088 does not disclose expressly that the corner nose radius is not larger than 0.05mm or 0.03 mm. Instead, Benzie '088 teaches sharp corners (figure 1). At the time of the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to select the corner nose radius of the tool such that it has a sharp corner, for example, in order to machine a sharp angle on a workpiece. Applicant has not disclosed that, nose radius that is not larger than 0.05mm or 0.03 mm provides an advantage, is used for a particular purpose, or solves a stated problem. Applicant should further note that Specification gives no criticality to the claimed limitation (see Page 13, lines 13-15 and Page 14, paragraph 30, lines 6-8).
7. Regarding claim 6, Benzie teaches a tool having straight parallel side cutting edges (15 & 16) and end cutting edge (14) (page 1, line 54). Benzie discloses the claimed invention except for error in parallelism and error in perpendicularity of

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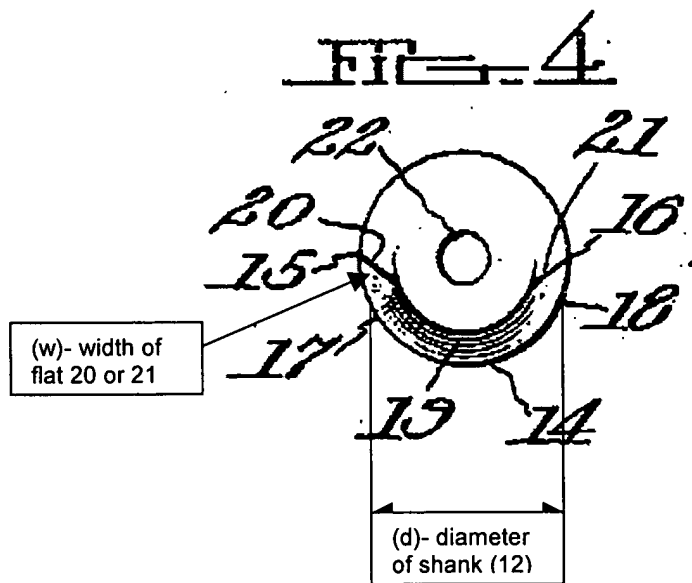
no larger than 3 micrometers. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a very small tolerance for deviation of the parallelism and perpendicularity of the tool edges to improve the working accuracy of Benzie's tool, since it has been held that where the general conditions of claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233. Applicant should further note that Specification gives no criticality to the claimed limitation (see Page 14, paragraph 30, lines 11-14 and Page 15, line 1-3).

8. Claims 1-8, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoemaker (U.S. Patent No. 1,781,863), in view of Simpson (U.S. Patent No. 5,853,268). and further in view of Moskowitz et al. (U.S. Patent No. 4,956,318).

Shoemaker teaches cutting tool (11) having a cylindrical shank portion (12), and a semi-cylindrical body portion (13) having a rake face, straight parallel side cutting edges (15 & 16) and end cutting edge (14) (see figures 1 & 2). Shoemaker also teaches the semi-cylindrical body portion (13) having a half moon shape in cross section ('863, Figures 4 & 5) (note: MSN Encarta online dictionary defines half-moon as:- a pale semicircle at the base of the finger nail. This description of "half-moon" reads

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on figure 4 and 5 of Shoemaker's teaching). Shoemaker also teaches the rake face having a flat surface (20 or 21) that has a width (w) that is smaller than the diameter (d) of the cylindrical shank portion (12) (lines 74-76 and see diagram below).



However, Shoemaker fails to teach the edge of the rake face being covered with diamond with a known surface roughness. Shoemaker also fails to teach the cutting tool being kept unrotated while cutting the workpiece.

Simpson teaches an insert having diamond-coated edges 318a, 318b, 318c (i.e. at the edge of the rake face), as set forth in the above rejection.

Moskowitz et al. teaches a cutting tool that is held stationary while the workpiece is moved relative to the cutting tool (as claimed in claim 1), as set forth in the above rejection. In the event the workpiece is moved relative to the cutting tool, the rake face

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is not inclined (i.e. is straight), it consequently be perpendicular to the moving direction (therefore is the rake angle of the rake face is 0 degree when cutting the workpiece).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Shoemaker's invention such that the edge of the rake face is coated with diamond as taught by Simpson for the purpose of strength and durability/increasing the tool life. The modified device of Shoemaker with the diamond coating would therefore be capable of being used to cut metal due to its added strength (i.e. it's not limited to cutting rubber ..etc). It would have also been obvious to one of ordinary skill in the art at the time of the invention was made to modify Shoemaker's invention such that cutting tool is kept unrotated while cutting a rotating workpiece, as taught by Moskowitz et al. because Moskowitz et al. teaches that this type of arrangement is typical for metal cutting operations ('318, Col. 2, lines 19-23).

9. Regarding claims 3 and 5, Shoemaker '863 does not disclose expressly that the corner nose radius is not larger than 0.05mm or 0.03 mm. At the time of the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to select the corner nose radius of the tool such that it has a sharp corner, for example, in order to machine a sharp angle on a workpiece. Applicant has not disclosed that, nose radius that is not larger than 0.05mm or 0.03 mm provides an advantage, is used for a particular purpose, or solves a stated problem. Applicant should further note that Specification gives

no criticality to the claimed limitation (see Page 13, lines 13-15 and Page 14, paragraph 30, lines 6-8).

10. Regarding claim 6, Shoemaker teaches a tool having straight parallel side cutting edges (15 & 16) and end cutting edge (14) (page 1, line 54). Shoemaker discloses the claimed invention except for error in parallelism and error in perpendicularity of no larger than 3 micrometers. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a very small tolerance for deviation of the parallelism and perpendicularity of the tool edges to improve the working accuracy of Shoemaker's tool, since it has been held that where the general conditions of claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

Applicant should further note that Specification gives no criticality to the claimed limitation (see Page 14, paragraph 30, lines 11-14 and Page 15, line 1-3).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sara Addisu at (571) 272-6082. The examiner can normally be reached on 8:30 am - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on (571) 272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sara Addisu
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SA
10/10/05


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PRIMARY EXAMINER